

## Native *Pseudomonas* sp. D-3-hydroxybutyrate dehydrogenase

Cat. No. DIA-204

Lot. No. (See product label)

### Introduction

#### Description

In enzymology, a 3-hydroxybutyrate dehydrogenase (EC 1.1.1.30) is an enzyme that catalyzes the chemical reaction: (R)-3-hydroxybutanoate + NAD<sup>+</sup> ↔ acetoacetate + NADH + H<sup>+</sup>. Thus, the two substrates of this enzyme are (R)-3-hydroxybutanoate and NAD<sup>+</sup>, whereas its three products are acetoacetate, NADH, and H<sup>+</sup>. This enzyme belongs to the family of oxidoreductases, to be specific, those acting on the CH-OH group of donor with NAD<sup>+</sup> or NADP<sup>+</sup> as acceptor. This enzyme participates in synthesis and degradation of ketone bodies and butanoate metabolism.

#### Applications

This enzyme is useful for enzymatic determination of ketone bodies (D-3-hydroxybutyrate and acetoacetate) in clinical analysis.

#### Synonyms

(R)-3-hydroxybutanoate: NAD<sup>+</sup> oxidoreductase; NAD<sup>+</sup>-beta-hydroxybutyrate dehydrogenase; hydroxybutyrate oxidoreductase; beta-hydroxybutyrate dehydrogenase; D-beta-hydroxybutyrate dehydrogenase; D-3-hydroxybutyrate dehydrogenase; D-(-)-3-hydroxybutyrate dehydrogenase; beta-hydroxybutyric acid dehydrogenase; 3-D-hydroxybutyrate dehydrogenase; beta-hydroxybutyric dehydrogenase; EC 1.1.1.30

### Product Information

#### Source

*Pseudomonas* sp.

#### Appearance

White amorphous powder, lyophilized

#### EC Number

EC 1.1.1.30

#### CAS No.

9028-38-0

#### Molecular Weight

approx. 130 kDa (by gel filtration)

#### Activity

Grade III 100U/mg-solid or more

#### Contaminants

Malate dehydrogenase < 2.0×10<sup>-3</sup>% Lactate dehydrogenase < 2.0×10<sup>-3</sup>% NADH oxidase < 2.0×10<sup>-3</sup>%

#### Isoelectric point

5.6±0.1

#### pH Stability

pH 5.0-8.5 (25°C, 20hr)

#### Optimum pH

8.3

#### Thermal stability

below 40°C (pH 6.5, 15min)

#### Optimum temperature

55°C

#### Michaelis Constant

4.2×10<sup>-4</sup>M (25°C, pH8.3), 7.0×10<sup>-4</sup>M (37°C, pH8.3) (D-3-Hydroxybutyrate)  
4.9×10<sup>-5</sup>M (25°C, pH8.3), 7.2×10<sup>-5</sup>M (37°C, pH8.3) (NAD<sup>+</sup>) 8.1×10<sup>-5</sup>M (25°C, pH7.1), 2.4×10<sup>-4</sup>M (37°C, pH7.1) (Acetoacetate) 8.4×10<sup>-6</sup>M (25°C, pH7.1), 1.5×10<sup>-5</sup>M (37°C, pH7.1) (NADH)

#### Inhibitors

PCMB, MIA, IAA, Ag<sup>+</sup>, Hg<sup>++</sup>, SDS, DAC

**Inhibitors**PCMB, MIA, IAA, Ag<sup>+</sup>, Hg<sup>2+</sup>, SDS, DAC**Stabilizers**

Sucrose, mannitol, bovine serum albumin

**Storage and Shipping Information****Stability**

Stable at -20°C for at least one year